Project Narrative for
Railroad Safety Grants for the Safe Transportation of Energy Products by Rail

Project Title:

26th Street SW to Edgewood Road Track Improvements Project

Location:

Cedar Rapids and Iowa City Railway
Cedar Rapids
Linn County
Iowa
52404
Congressional district IA-1

Type of Project: Track Enhancement

Applicant:

Iowa Department of Transportation
Office of Rail Transportation
800 Lincoln Way
Ames, IA 50010
Primary contact: Tamara Nicholson, Director, Office of Rail Transportation
Phone 515-239-1052, e-mail tamara.nicholson@dot.iowa.gov

Proposed Project:

All loaded and empty ethanol rail cars traveling on the Cedar Rapids and Iowa City Railway (CRANDIC) system are bi-directionally routed across a segment of single track located between 26th Street SW past Edgewood Road. As a critical artery for the movement of ethanol products, 26th Street SW to Edgewood Road is in need of upgrades to support the increased heavy volumes of rail traffic. CRANDIC estimates volumes in 2015 will reach almost 50,000 ethanol cars; this is up more than 7,000 carloads from 2014 levels. This segment of track is a bottleneck as it has an S-Curve, a low lying roadbed section, poor drainage and visibility, a single track and no access road for emergency response. As such, this span of 3,200 feet is in need of restructuring to continue to meet the current and future demands of ethanol traffic through the area. Specifically, the Iowa DOT and CRANDIC aim to eliminate infrastructure and maintenance risks, which will create a safer and more efficient route.

Figure 1 - 8 and 8.5 degree S-Curve

Project benefits at a glance

- Mitigate risk of derailments and environmental impacts
    - Track sits within 75ft of Prairie Creek (3 miles downstream and feeds into the Cedar River, a large waterway in eastern Iowa) Derailment and spill of ethanol into this waterway would have severe environmental implications
- Decrease bottleneck constraints by adding a new segment of mainline track
    - Remove bottleneck for key interchange partners
- Improve visibility of approach at-grade crossing
- Reduce risks of grade crossing accidents
- New access road constructed alongside rail
- Improve drainage, lengthening lifecycle of ballast, ties and rail
- Improve fuel efficiencies and train handling
- Decreasing the risk of negative buff and draft forces
- Mitigate repair and maintenance costs
- Eliminate yard classification delays due to through trains
- Improve operational efficiencies with other ethanol connecting carriers

Background

The Cedar Rapids and Iowa City Railway (CRANDIC) is a shortline railroad in east central Iowa and is a critical, high volume transporter of ethanol. Appendix A includes a more detailed profile of the railroad.

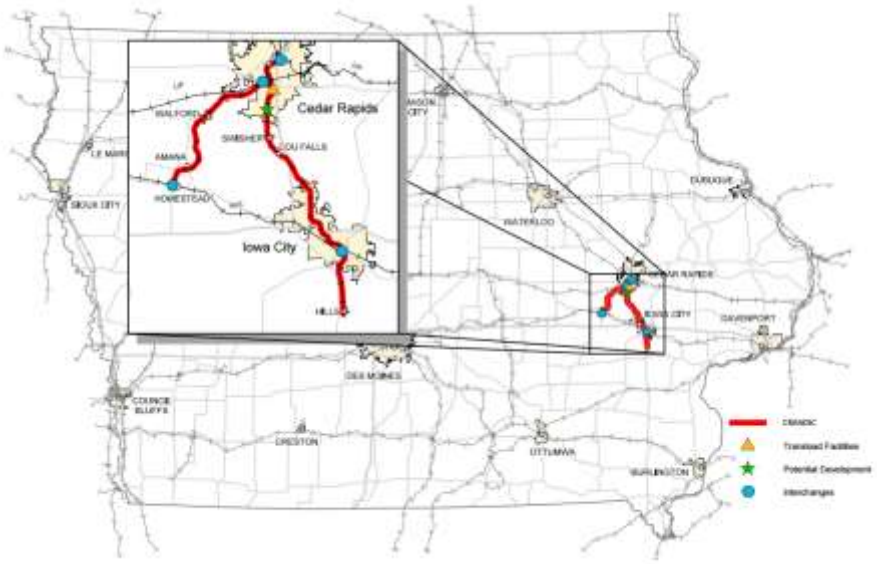

Figure 2 - Location of Cedar Rapids and Iowa City Railway (CRANDIC)

Iowa is the largest production center for ethanol in the U.S. with the capacity to produce 3,820 million gallons annually, approximately 25% of the national production. Though crude oil incidents have captured the spotlight, ethanol represents a very similar risk. Ethanol is highly flammable, easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air and vapors may travel to the source of ignition and flash back. The primary difference between crude oil and ethanol is that ethanol is less viscous than crude oil and ethanol easily mixes with water. That means that it can't be blocked or removed from a waterway with booms creating different environmental risks and recovery/mitigation actions. The emergency response guidelines indicate that the same risks and response in terms of life and property apply to both ethanol and crude oil.

The Iowa Department of Transportation submits this application to increase the safety of a critical ethanol route that serves some of Iowa's highest production ethanol plants, as well as interchange and bridge traffic.

Applicant eligibility

The Iowa Department of Transportation (Iowa DOT), an eligible applicant, is submitting this application on behalf of the Cedar Rapids and Iowa City Railway (CRANDIC), a hauler of energy products in the state. The Iowa DOT, if awarded a grant, will execute a cooperative agreement with CRANDIC as the sub-grantee spelling out the terms and responsibilities inherent in administering a federal grant.

Primary Contact:

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Funding

Amount of Federal funding requested	$1,065,000	60%
Match amount provided by CRANDIC Railway	$710,000	40%
Total project cost	$1,775,000	100%

CRANDIC, a class III railroad operating in Iowa, will provide 20% *above* the required 20% match, totaling 40% matching funds. Federal funds for this particular project location have not previously been sought.

Though this particular project has not received or sought prior federal funding, CRANDIC is familiar with and has successfully managed previous federal grants and loans. CRANDIC was the recipient of two grants via the Federal Railroad Administration's (FRA) Railroad Rehabilitation and Repair Grant program. These grants totaling $6,965,163 and $760,926 and were administered by CRANDIC through a sub-grantee agreement with the Iowa DOT. The money was used to assist in the repair of damages from severe flooding in the Midwest. CRANDIC provided the necessary matching 20% to complete the identified repairs.

In addition, CRANDIC is accustomed to working with the Iowa DOT on construction projects as the recipient of five state funded loans totaling $5,245,000. Of the five, one has been paid back in full totaling approximately $1.5 million dollars.

Project Description

All loaded and empty ethanol rail cars traveling on the CRANDIC system are bi-directionally routed across a segment of single track located between 26th Street SW past Edgewood Road, the project area. As a critical artery for the movement of ethanol products, 26th Street SW to Edgewood Road is in need of upgrades to support the increased heavy volumes of rail traffic. CRANDIC estimates volumes in 2015 to reach almost 50,000 ethanol cars; this is up more than 7,000 carloads from 2014 levels. This segment of track is a bottleneck as it has an S-Curve, a low lying roadbed section, poor drainage and visibility, a single track and no access road for emergency response. As such, this span of 3,200 feet is in need of restructuring to continue to meet the current and future demands of ethanol traffic through the area. Specifically, the Iowa DOT and CRANDIC aim to eliminate infrastructure and maintenance risks, which will create a safer and more efficient route.

In 2006, Archer Daniel Midland (ADM) announced an ethanol expansion at their Cedar Rapids plant. The company built a dry corn milling plant with an annual capacity of 400 million gallons adjacent to their

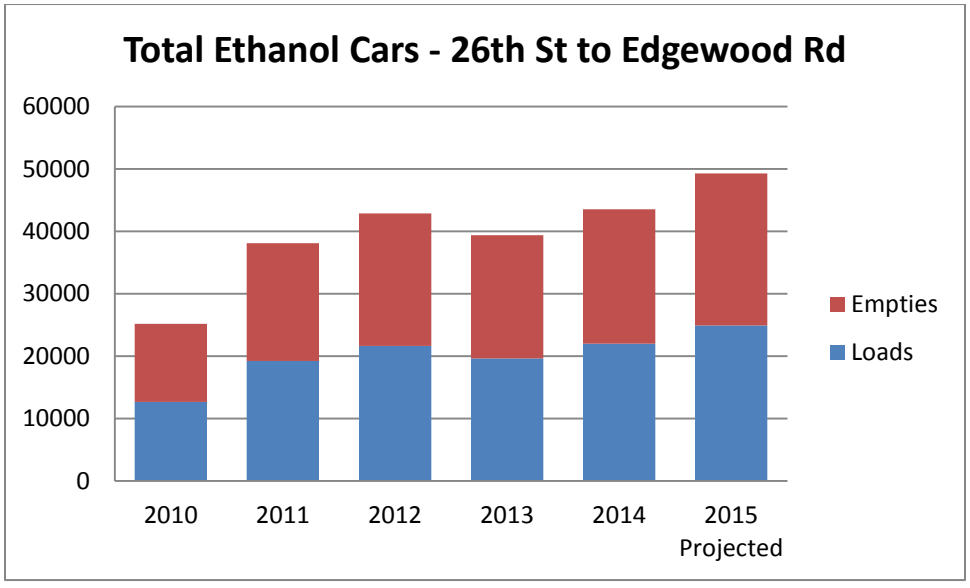
existing corn processing plant, with ethanol production capabilities. The new plant began producing ethanol in the fall of 2010.

With the increased rail car volumes the new plant would provide, CRANDIC made the following infrastructure investments to enhance ethanol train volume, efficiency and safety. Those investments were strategically made to infrastructure which carried over 50% of traffic and all of their ethanol movement.

2007-2015 Improvements	Location	Benefit	Cost
Continuous Welded Rail Installed	Amana Line	Crew efficiency, maintenance & safety	$4.8M
Bridge Replacements	10 mainline bridges	Improved velocity, able to handle larger tonnage trains, maintenance & safety	$7.3M
Expanded interchange yard	950s Yard	Improved velocity between CRANDIC & IAIS, crew switching efficiency & safety	$3M

Energy Products

In 2014, CRANDIC moved approximately 43,000 ethanol cars. With the increased ethanol business in 2015, CRANDIC is on pace to move approximately 50,000 ethanol cars. The ethanol traffic uptick includes origins outside of ADM's investments and requires additional infrastructure improvements. Over the last 18 months, ethanol producers on the Iowa Northern Railway (IANR) began shipping bridge unit and manifest ethanol trains on the CRANDIC, all of which route over the project area. The CRANDIC interchanges these cars, along with other loads, with the Iowa Interstate Railroad (IAIS). Below is a chart outlining increased volumes over the last five years?



Completion of this project will provide numerous benefits, most notably a safer infrastructure for the shipment of large volumes of ethanol.

Safety Risks and Challenges

- The single track prevents smooth movement of through traffic and creates a bottleneck. Ethanol traffic often is delayed or "stacked up" awaiting room to get past this bottleneck. Large quantities of ethanol "at rest" are subject to vandalism or more nefarious security risks.
- The "S" curve prior to the 26th St. SW at-grade passively controlled crossing has limited visibility of trains approaching from the west, creating a greater risk of grade crossing accidents.
- This route is located very near Prairie Creek and is located in a 100 yr. flood plain. A train incident involving an ethanol spill would have environmental consequences to the local waterways, particularly because ethanol dissolves in water and cannot be contained or recaptured using booms.
- The lack of an access road to this segment of track would make emergency response more difficult in the event of an incident.
- Poor drainage in the area increases the risk of poor track geometry that could lead to a derailment.

Figure 3 - Poor drainage

- Jointed rail currently in place is more subject to joint bar defects which could lead to an incident
- Inconsistent elevation and the "S" curve make train handling more challenging and less efficient. Buff and draft forces must be carefully and skillfully handled by operators, particularly on unit trains of ethanol, to prevent car handling issues and derailments

An analysis of features within one half mile of the route was conducted. See map and table included in Appendix D. Significant features or populations that could be at risk or be impacted by an evacuation in the event of an incident involving a release were identified through a GIS analysis:

Conservation and Recreations Lands	2
Designated Stream Length	.8 mi.
Housing Units	2
Ambulances and Fire Protection Services	1

Other Beneficiaries

Numerous entities will benefit through this project and are detailed below:

- Expedited interchange of bridge moves
  - Better dwell times
  - Better car utilization
- Indirect ethanol Interchange railroads – All Class I's operating out of Chicago

    - Better dwell times
    - Better car utilization
- Direct Shippers –ADM, Ingredion (Penford), Flint Hills Resources
    - Better dwell times
    - Better car utilization
    - Less capital costs as volume of cars improve
- Economy – famers, industries, vendors, contractors
    - Competitive market for product pricing
    - Enhances quality of life for employees/owners
    - Job creation, enhancement of revenue
    - Company solvency due to purchasing of products
- Safety – employees, public, environment, railroads, railcar owners
    - Access road allows for ease of emergency response which didn't exist before
    - Reduced wear on locomotives and railcars (wheels and flanges)
    - Improved visibility for motorists at the 26th St. SW at-grade highway-railroad crossing

Benefits of this project include:

- Decrease bottleneck constraints by adding a new segment of mainline track
    - Remove bottleneck for key interchange partners
- Improve visibility of approaching crossing
- Reduce risks of grade crossing accidents
- Mitigate risk of derailments and environmental impacts
    - Track sits within 75ft of Prairie Creek (3 miles downstream and feeds into the Cedar River, a large waterway in eastern Iowa) Derailment and spill of ethanol into this waterway would have severe environmental implications over a large area
- New access road constructed alongside rail
- Improve drainage, lengthening lifecycle of ballast, ties and rail
- Improve fuel efficiencies and train handling
- Decreasing the risk of negative buff and draft forces
- Mitigate repair and maintenance costs
- Eliminate yard classification delays due to through trains
- Improve operational efficiencies with other ethanol connecting carriers

In addition to the above, removal of the S-Curve and addressing the elevation (grade) and degree of curvature, CRANDIC will see the positive benefits in train handling, thereby fuel efficiency. In short, addressing the S-Curve and elevation affects the rolling resistance. These improvements will positively affect tractive effort requirements and the train buff and draft forces. Undulating grades increase and decrease the rolling resistance of the train, as the train increases and decreases elevation, the elevation changes the train handling characteristics. Buff and draft forces must be controlled by the locomotive engineer, having a more consistent gradual grade will make train control easier for the locomotive engineer and reduce the risks of derailment.

By eliminating one of the 8 degree curves altogether; reducing the other to 5.9 degrees; and reducing the elevations to 0.16 and 0.17 degrees respectively; tractive effort demand will be reduced by 22% for the moves listed in the tables below. This will ultimately permit movement through this area at track speed (10mph) in a lower throttle position, reducing fuel demand. Rolling resistance as the train moves through a curve and/or over a grade affects the tractive effort requirement generated by the locomotives. The reduction of grade and curvature reduces the horsepower requirement for a given speed thereby reducing fuel consumption, air emission, rail and wheel wear, etc.

Below are snapshots supplied by CRANDIC of data depicting the impacts of the changes, in essence, better tractive effort, moving at track speed, yet allowing for lower throttle usage, equating to better fuel economy and lower emissions.

Tractive Effort Calculation Worksheet

INPUT SECTION

Variable	Description		Input	Comments
CW	Weight of each car	(tons)	131	*Can enter either tons or lbs for car weights*
	Alt. for Weight of each Car	(lbs)		
CN	Number of Cars	(#)	80	
LW	Locomotive Weight	(tons)	286	*Can enter either tons or lbs for locomotive weight*
	Alt. for Locomotive Weight	(lbs)		
GD	% Grade	(%)	0.2	
GCN	Number of Cars starting on Grade	(#)	10.0	
CD	Degrees of Curvature	(degrees)	5.9	
CD	Number of Cars starting on Curve	(#)	10.0	

OUTPUT SECTION

Description	Result	Comment
Surplus Available Tractive Effort	51,952.8	= ATE - TTE
If positive then load can be pulled	Surplus Capacity Available	

CALCULATIONS SECTION

	Description	Result	Formula
LOAD DATA			
CW	Weight of each car (tons)	131.0	Calculated from above in tons
TL	Total weight of trailing load (tons)	10,480.0	TL = CW X CN
CTE	Required starting tractive effort (?#/Ton)	73,360.0	CTE = 7 X TL
GRADE DATA			
GR	Grade resistance per ton	3.4	GR = 20 X GD
TGR	Total grade resistance for trailing load	4,454.0	TGR = GR X (GNC X CW)
CURVE DATA			
CR	Curve resistance per ton (8#/ton)	4.7	CR = .8 X CD
TCR	Total curvature resistance	6,183.2	TCR = CR X (CCN X CW)
TTE	Required tractive effort (pounds)	83,997.2	TTE = TCR + TGR + CTE
LOCOMOTIVE DATA			
LW	Locomotive weight (tons)	286.0	Calculated from above in tons
LRR	Locomotive rolling resistance (25#/Ton)	7,150.0	LRR = 25 X LW
ATE	Available tractive effort	135,950.0	ATE = ((LW X 2000) /4) - LRR

Tractive Effort Calculation Worksheet

INPUT SECTION

Variable	Description		Input	Comments
CW	Weight of each car	(tons)	131	*Can enter either tons or lbs for car weights*
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CN	Number of Cars	(#)	80	
LW	Locomotive Weight	(tons)	286	*Can enter either tons or lbs for locomotive weight*
	Alt. for Locomotive Weight	(lbs)		
GD	% Grade	(%)	0.7	
GCN	Number of Cars starting on Grade	(#)	10.0	
CD	Degrees of Curvature	(degrees)	16.5	
CD	Number of Cars starting on Curve	(#)	10.0	

OUTPUT SECTION

Description	Result	Comment
Surplus Available Tractive Effort	27,644.0	= ATE - TTE
If positive then load can be pulled	Surplus Capacity Available	

CALCULATIONS SECTION

	Description	Result	Formula
LOAD DATA			
CW	Weight of each car (tons)	131.0	Calculated from above in tons
TL	Total weight of trailing load (tons)	10,480.0	TL = CW X CN
CTE	Required starting tractive effort (?#/Ton)	73,360.0	CTE = 7 X TL
GRADE DATA			
GR	Grade resistance per ton	13.4	GR = 20 X GD
TGR	Total grade resistance for trailing load	17,554.0	TGR = GR X (GNC X CW)
CURVE DATA			
CR	Curve resistance per ton (8#/ton)	13.2	CR = .8 X CD
TCR	Total curvature resistance	17,292.0	TCR = CR X (CCN X CW)
TTE	Required tractive effort (pounds)	108,206.0	TTE = TCR + TGR + CTE
LOCOMOTIVE DATA			
LW	Locomotive weight (tons)	286.0	Calculated from above in tons
LRR	Locomotive rolling resistance (25#/Ton)	7,150.0	LRR = 25 X LW
ATE	Available tractive effort	135,950.0	ATE = ((LW X 2000) /4) - LRR

Specific Project Activities

The proposed project is located between 26th Street SW to Edgewood Road in Cedar Rapids, Iowa. The track was formally part of the Milwaukee Railroad's mainline, which the CRANDIC acquired in the early 1980s. This is a primary route used by the CRANDIC and is used to interchange all ethanol cars with their largest interchange carrier, the IAIS. The following shows an aerial of the site as well as an engineer's rendering of the project. A larger copy of the engineering drawing is included in Appendix C.

Figure 5 - Aerial view of project location

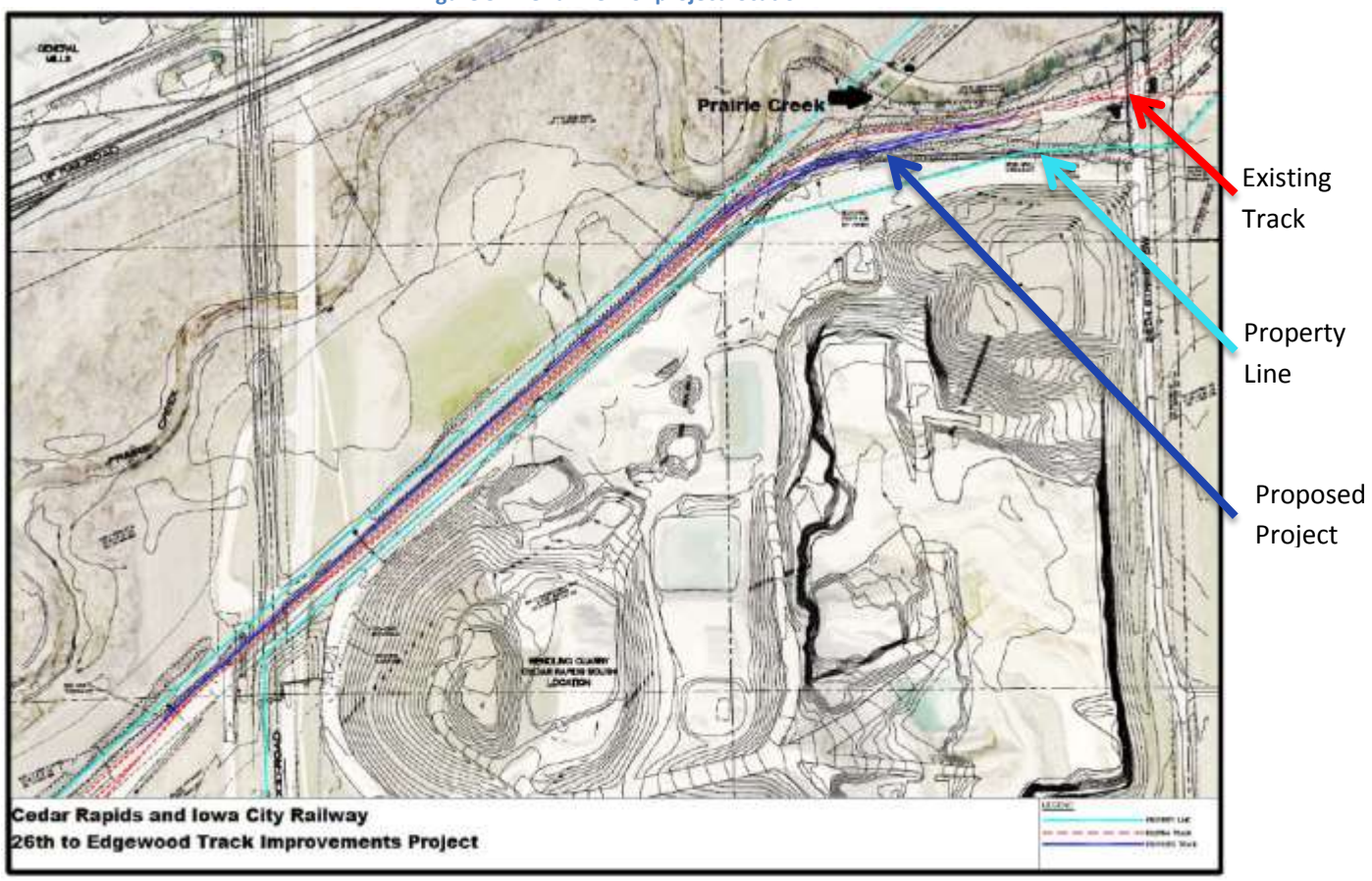

Figure 4 - Engineer's drawing of proposed project

The construction activities that positively impact safety and efficiency are summarized below:

- Track renewal:
  - Connectivity to two sticks of CWR as part of this project
  - Replace balance of current 39 ft. non-control cooled 112 lb. rail with 80 ft. control cooled 115 lb. rail
  - Remove a low grade segment and raise the roadbed and rail for consistent grades
  - Remove one 8.5 degree curve
  - Reduce remaining curve from 8 degrees to 5.9 degrees
  - Remove any undulating grades
- Ballast renewal
  - Replace current with all new 2" ballast
- Turnout installation
  - A #11 turnout – positioned for gradual movement through curve
- Drainage rehabilitation
  - Earthwork and grading to improve draining and add space for an access road and additional track
  - Add 6" drain tiles running parallel on both sides of the tracks

Project Criteria

The project meets the required criteria spelled out in the Notice of Funding Availability:

- Under $3 M – total project request is $1.775M
- 20% match – sub-grantee providing 40% match
- No part of project started or funds expended – project hasn't started, no funds expended
- Rehabilitate, restore, maintain, or improve track conditions and classification that will directly and positively impact railroad safety. In addition, no environmental or historical preservation impacts are expected with the proposed project.

Evaluation Criteria

Technical Merit

The project proposed in this application will improve the infrastructure of this critical ethanol route in Cedar Rapids and fully meets the requirements outlined in the Notice of Funding Availability.

The tasks as outlined in the SOW are appropriate to achieve the expected safety outputs of the proposed project.

The proposed costs are realistic and are sufficient to accomplish the tasks documented in the SOW.

The Iowa Department of Transportation is confident in CRANDIC's ability to finance the match and complete the project meeting the requirements of a federal grant. The Iowa DOT has successfully partnered with CRANDIC on a number of projects and is fully confident in their staff and capabilities to successfully complete this project on time and within budget.

Project Benefits

This rail project will increase the safety of the transport of large volumes of ethanol (an expected 50,000 cars in the upcoming year). New track structure, greater capacity, a straighter more level route, better drainage and easier and more efficient train handling will all contribute to a safer, more secure route to handle the demands of today's and tomorrow's ethanol shipments,

Benefits of this project include:

- Decrease bottleneck constraints by adding a new segment of mainline track
    - Remove bottleneck for key interchange partners
- Improve visibility of approach at crossing
- Reduce risks of grade crossing accidents
- Mitigate risk of derailments and environmental impacts
    - Track sits within 75ft of Prairie Creek (3 miles downstream and feeds into the Cedar River, a large waterway in eastern Iowa) Derailment and spill of ethanol into this waterway would have severe environmental implications
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Numerous entities will benefit through this project and are detailed below:

- Expedited interchange of bride moves
    - Better dwell times
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- Indirect Ethanol Interchange RR – All Class I's operating out of Chicago
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- Direct Shippers – Archer Daniel Midland, Ingredion (Penford), Flint Hills Resources
    - Better dwell times
    - Better car utilization
    - Less capital costs as volume of cars improve
- Economy – famers, industries, vendors, contractors
    - Competitive market for product pricing
    - Enhances quality of life for employees/owners
    - Job creation, enhancement of revenue
    - Company solvency due to purchasing of products
- Safety – employees, public, environment, railroads, railcar owners
    - Access road allows for ease of emergency response which didn't exist before
    - Reduced wear on locomotives and railcars (wheels and flanges)

In addition to the above, removal of the S-Curve and addressing the elevation (grade) and degree of curvature, CRANDIC will see the positive benefits in train handling, thereby fuel efficiency. In short, addressing the S-Curve and elevation affects the rolling resistance. These improvements will positively affect tractive effort requirements and the train buff and draft forces. Undulating grades increase and decrease the rolling resistance of the train, as the train increases and decreases elevation, the elevation changes the train handling characteristics. Buff and draft forces must be controlled by the locomotive engineer, having a more consistent gradual grade will make train control easier for the locomotive engineer and reduce the risks of derailment.

Benefit Cost

Benefit Cost can be evaluated in two ways – qualitatively and quantitative. For this particular project, the primary benefits are difficult to quantify.

The largest and most important qualitative benefit is the increased safety derived from the reduced risk of a track-caused derailment or incident. The department has identified no quantifiable method to represent that benefit. Though the potential for *any* derailment is low, the quantity of ethanol carried on this route is very high – estimated at approximately 50,000 cars in the upcoming year. The benefits that will directly accrue from this project that cannot easily be quantified include:

- New track structure with CWR that will reduce the potential for derailments
- Addition of a second track that will keep through trains moving through the area without the need to stop or wait
- Addition of an access road to facilitate train servicing and enhance the ability of emergency personnel to respond to an incident
- Improved train handling by leveling elevations
- Improved train handling by minimizing the S-curve
- Enhancing visibility of approaching trains at the at-grade highway-railroad crossing by minimizing the S-curve.

Another risk that cannot adequately be quantified is the disruption in the freight rail network and shipment of ethanol in the event of an incident that would prevent the use of this segment of track. The segment of track in this project stands between the production of some of Iowa's largest ethanol producers and the interchange point with Iowa Interstate Railroad that moves the ethanol to Chicago and other interchange points. In addition, the ethanol originating on the Iowa Northern Railway, which represents about 7% of car movements with bridge trains, also passes through this project area. With no efficient rail movement, ethanol plants would be forced to reduce or shut down production until normal freight movement would return or reroute shipments at a higher cost.

With only one highway-railroad crossing and a locomotive savings in horsepower over a very short distance, the quantitative analysis does not fully represent the total savings.

An analysis of the savings in operation and maintenance costs, and the value of the reduction in PM_{10} and NO_x emissions resulted in a -1.62 benefit to cost ration, discounted at 7%.

Un-discounted total benefits over the 20 year period by category are detailed below:

Undiscounted benefit values by category over 20 years	
Additional Maintenance Costs	($340,034)
Value of Emissions Reduction PM_{10}	$24,271
Value of Emissions Reduction NO_x	$667,450

Appendix E. includes details on the benefits and costs. In addition an Excel spreadsheet with the assumptions and data used in the benefit cost calculation is included.

Other Selection Criteria

Alignment with DOT Strategic Goals and Priorities
The project aligns with Iowa DOT Strategic goals and priorities as outlined below.

- Improving transportation safety;
- Maintaining infrastructure in a state of good repair;
- Promoting economic competitiveness;
- Advancing environmentally sustainable transportation policies

Livability Principles
In addition, the project furthers a number of the six "Livability Principles" the Iowa DOT developed with the Department of Housing and Urban Development and the Environmental Protection Agency as part of the Partnership for Sustainable Communities:

- **Enhance economic competitiveness** – Enhancing the infrastructure will improve dwell times, which will in-turn improve the economic competitiveness for shippers. In addition, enhancements will make the movement safer and more efficient. The project will provide competitive cost and delivery time advantages, allowing major local industries to remain robust in their production, including the ethanol and the corn industry.
- **Coordinate policies and leverage investment** – CRANDIC serves two of the top five ethanol producing companies in the United States. The ethanol industry relies on rail to transport their products. As the largest ethanol producing state, CRANDIC and Iowa's other rail lines help reduce our country's dependency on foreign oil and meet Renewable Fuel Standards. Without safe and secure rail service, which this project advances, the ethanol industry in Iowa would not thrive as it has.
- **Value communities and neighborhoods** – Good paying, safe and reliable jobs are characteristics of the CRANDIC and its ethanol customers. Additional investments in rail infrastructure will continue to provide safe, reliable and efficient rail transportation for the ethanol market. Farmers rely on the ability to move their product for their success; ethanol shippers and their customers rely on CRANDIC for their success. As those entities prosper, so does the railroad, the community and the employees.

Transportation plays a critical role in connecting Americans and communities to economic opportunity. The Iowa DOT, in conjunction with CRANDIC, can help more Americans reach opportunity by ensuring that our state's transportation system provides reliable, safe, and affordable ways to reach jobs, lessen dependence on foreign oil, promoting energy independence and other essential services. Ethanol plants provide good paying jobs often in rural disadvantaged communities; increase prices for farm commodities; since ethanol shipments are rail dependent this project supports these benefits and good, safe rail transportation as promoted by this project makes the ethanol industry possible.

Project Delivery Performance:
CRANDIC is familiar with and has successfully managed previous federal grants and loans. Following the devastating Midwest flooding in 2008, CRANDIC successfully managed almost $7.0 million dollars in federal grant money through a sub-grantee agreement with the Iowa DOT. The project, matched with 20% by CRANDIC, was completed on time, within budget and met all federal regulatory and environmental requirements. In addition, CRANDIC was the recipient of five loans totaling $5,245,000. Of the five, one has been paid back in full totaling approximately $1.5 million dollars.

The proposed project compliments previous state loans to CRANDIC that have been applied to the infrastructure improvements needed due to increased ethanol train movement. Those projects include, but are not limited to:

2007-2015 Improvements	Location	Benefit	Cost
Continuous Welded Rail Installed	Amana Line	Crew efficiency, maintenance & safety	$4.8M
Bridge Replacements	10 mainline bridges	Improved velocity, able to handle larger tonnage trains, maintenance & safety	$7.3M
Expanded interchange yard	950s Yards	Improved velocity between CRANDIC & IAIS, crew switching efficiency & safety	$3M

Region/Location
The location of the project will neither increase or decrease impact on the general location. The project, located in a primarily unpopulated area will have negligible regional impact. Linn Co. is not an economically distressed area so that there will be little impact to that population.

Completion of this project will help further the FRA's mission to enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future. Because the ethanol industry helps meets both state and national goals for sustainable fuels, the completion of this project will more safely and efficiently link businesses with consumers, suppliers, and markets. The project will help meet one of the draft National Rail Plan goals by supporting the current freight rail market share and growth.

The project addresses each of the U. S. DOT's goals to varying degrees for

- Safety
- State of Good Repair
- Economic Competitiveness
- Livable Communities
- Environmental Sustainability

Partnerships:
The Iowa DOT is pleased to partner with CRANDIC on this project. CRANDIC is a Class III railroad that has demonstrated a commitment to safety and has a strong safety culture. With 19% of their rail traffic consisting of the highly flammable ethanol, CRANDIC has continuously worked to improve the infrastructure, upgrade equipment, and train personnel to accommodate the increases in ethanol traffic.

The proposed project is a continuation of those quality improvements to remove another hurdle to safer and more efficient operations.

CRANDIC believes that a variety of supplier perspectives is a priceless resource and key in achieving economic opportunity and growth. Employing creative approaches to ensure workforce diversity and use of disadvantaged and minority business enterprises; including opportunities for small businesses and disadvantaged business enterprises is a focus for CRANDIC. CRANDIC employees share in a company-wide commitment to Supplier Diversity, and partnerships with these suppliers assist in several ways:

- Achieve long-term growth
- Act as a springboard for economic viability
- Add value to our company
- Create sustainable opportunities for a new class of Diverse Suppliers
- Develop innovative solutions
- Reflect the diversity of the communities we are privileged to serve
- Increase brand recognition and loyalty from customers that embrace Supplier Diversity

Project Readiness:
A preliminary environmental review was performed to complete the FRA's Categorical Exclusion Worksheet (Appendix F). If awarded a grant, the Iowa DOT's Office of Location and Environment will undertake a more comprehensive review. Any required field studies or more comprehensive reviews will be accomplished by qualified Iowa DOT staff or by a qualified contractor engaged by the sub-grantee. The Iowa DOT's Office of Location & Environment and Office of Rail Transportation have previously worked with the FRA on other projects that require a CE and are fully familiar with FRA's NEPA requirements. Because the project does not vary significantly from the current alignment of an active rail line and based on a preliminary review, the Iowa DOT expects to have additional investigations to complete, but expects the project will not have significant impact on the environment, either individually or cumulatively.

The proposed project is consistent with the Iowa DOT's statewide long range plan and current and future rail plan. Safety is a key element in the State Transportation Plan updated in 2012. "Safely moving people and goods through investments that strengthen our economic vitality" is a guiding principle for state investments. The plan identifies "Improve the rail system physical infrastructure" and "Monitor rail safety and security conditions" as investment actions.

The Iowa DOT is currently in the process of updating Iowa's 2009 Rail Plan, which is expected to have a greater emphasis on the safe transportation of hazardous materials. The Iowa DOT currently has a Crude Oil and Biofuels Safety report underway which is expected to result in practical, actionable improvements to reduce risk and improve emergency response, such as targeted infrastructure investments that would reduce the risk of derailments, or improved training for first responders. The results of this study will be incorporated in the updated 2016 Iowa Rail Plan.

The Statement of Work addresses readiness by the Iowa DOT and CRANDIC, showing that the project will move forward as soon as an award and agreements are completed and environmental clearances received. CRANDIC is prepared to not only meet the 20% matching but increase their portion to 40% and attests they are not dependent on any other entity for that 40% financing.

CRANDIC's is prepared and willing to share their engineering and project designs to the FRA or anyone else the Iowa DOT or FRA deems appropriate to assess any risks. CRANDIC sees no unusual components for the scope of this project and anticipates no unusual risks to advance the project.

Project Implementation

The Iowa DOT will be solely responsible to the FRA for this project if awarded a grant. The Iowa DOT will develop a sub-grantee agreement with CRANDIC. The sub-grantee agreement will include the department's expectations for project contracting, project oversight and compliance with all federal requirements associated with a federal grant. The Iowa DOT will coordinate any change-orders of a magnitude that affects the overall project with the FRA. Less significant change orders will be coordinated between the Iowa DOT as the grantee and CRANDIC as the sub-grantee. CRANDIC has pledged the matching funds for this project and will be responsible for any cost overruns. The Iowa DOT in coordination with CRANDIC will conform to Federal requirements for project progress reporting.

As CRANDIC has successfully shown with their management of previous Federal Grants, compliance to identified project plans, oversight of construction efforts and addressing risks follow an industry recognized program. CRANDIC believes in promoting domestic manufacturing, supply, and industrial development. As it has in previous projects, CRANDIC will again meet the Buy America requirements with this submitted project.

CRANDIC has utilized Microsoft Office Project on previous multi-million dollar construction projects with great success and will again use this tool to assist in project management.

Environmental or historic preservation impacts

Because this project will not vary significantly from the current alignment, no environmental or historic preservation impacts are anticipated. Further details were included in the Project Readiness section above.